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ISD IN-USE EVALUATION PROTOCOL

September 28, 2006

1. Objectives

The overall objective is to determine whether performance of working ISD systems is similar to performance of the system tested in certification. As discussed in a March 1, 2005, meeting between CAPCOA and ARB, the evaluation will focus on the following:

- Vapor to Liquid (V/L) testing per Modified Exhibit 5 of Executive Order VR-202-A (Attachment 1) to determine how closely the Veeder-Root ISD system compares to the V/L method, and to determine whether the V/L Malfunction Criteria for Gross and Degradation failures (Section 10.2.1 (b) and (c) of CP-201) can be tightened without compromising the reliability of the assessment.

- Determine if the Healy ISD System effectively identifies Onboard Refueling Vapor Recovery (ORVR) and non-ORVR vehicles such that V/Ls can be adequately identified per CP-201 criteria.

- Underground Storage Tank (UST) pressure monitoring per Determination of Pressure in Underground Gasoline Storage Tanks (Attachment 2) to determine how closely the Veeder Root ISD system pressure sensor value compares to the monitored value.

- Verification that the Veeder-Root ISD vapor pressure sensor and the vapor flow meter are operating properly.

2. Site Selection

Certification and Research and Development sites will be excluded from being an evaluation site. The minimum number of stations is six at the following districts with one site preferably having a throughput greater than 500,000 gallons per month:

- South Coast (minimum of 1 site)
- San Joaquin (minimum of 1 site)
- San Luis Obispo
- San Diego (minimum of 1 site)
- Glenn County
- Sacramento (minimum of 1 site)
- Bay Area (minimum of 1 site)

3. ISD Evaluation

CAPCOA and Air Resources Board (ARB) staff will work cooperatively during the time period between the ISD installation at the first site and the fifth site to evaluate the protocol and to collect data. Any changing or refining of the protocol will be done during this time jointly with ARB and CAPCOA. The evaluation will start when the sixth site becomes operational with at least five of those sites in the designated Districts or 12 months after the first evaluation site is installed, whichever comes first.

The study will be a collaborative effort between the ARB and CAPCOA. The field testing will be conducted by the Districts. Access to data will be obtained remotely and in cooperation with Veeder-Root.

4. Enforcement at the Evaluation Test Sites

Although CAPCOA and ARB have no authority to bind individual air districts to specific enforcement actions or enforcement discretion, CAPCOA and ARB have provided recommendations specific to construction and operating permit conditions and the scope of appropriate enforcement actions at evaluation test sites during the 18-month evaluation. These recommendations are contained in the Recommended ISD Enforcement Policy During 18 month Evaluation, June 27, 2006, (See Attachment 3).

5. Vapor Flow Meter Operability Test and Additional V/L (Vapor/Liquid) Testing

District staff should notify Vince Bunac of ARB, prior to performing a site visit to facilitate matching the field data with the electronic data. The TLS system data will be provided by Veeder-Root or remotely accessed by ARB and the districts. Upon arriving at a test site, testing staff should synchronize timepieces with the ISD system clock to ensure proper correlation of test data to ISD data.

ISD vapor collection accuracy is dependent upon vapor flow meter accuracy. Since there is a single flow meter in each dispenser, all hose vapor flows make use of the same flow sensor within a dispenser. Therefore it is only necessary to test V/L accuracy on one side of the dispenser. During each V/L test the opposite side of the dispenser must be inactive by coning off the fueling point to prevent dispensing during the test.

In order to insure consistency amongst the data collected by each District, at a given dispenser, the Vapor Flow Meter Operability Test should be performed first, followed by any additional V/L testing as required by the Protocol. The Vapor Flow Meter Operability Test and the V/L test requirements are discussed below.

Vapor Flow Meter Operability Test

The Vapor Flow Meter Operability Test, as defined in Exhibit 9 of Executive Order VR-202-A and described in the steps below, shall be performed once monthly, for 18 consecutive months, minimum. The forms to check-off and record results from these procedures are enclosed.

1. Obtain an ISD Daily Report printout with previous day's gross ISD V/L daily averages from the TLS. See Table 1 for steps to access ISD Daily report from TLS console.

2. Select a dispenser and note the fueling point numbers on the data form (Form 4). Obtain the vapor flow meter serial number from the TLS. See Table 2 for steps to access the vapor flow meter serial numbers from the TLS. Conduct a Healy EVR Phase II system V/L test per Modified Exhibit 5 of VR-202-A with the lowest grade fuel available on that dispenser.

3. Compare the ISD Daily Report Gross V/L value for that dispenser hose to the V/L test result (subtract ISD V/L value from V/L test value and note difference on Form 4).

   Pass: If the difference is between -0.15 and +0.15, then the ISD V/L value is within +/- 0.15 of the V/L test value. Circle "Pass" to document that the ISD flow meter in that dispenser passes and repeat the procedure beginning at Step 2 for the next dispenser.

   Continue: If the ISD V/L value is NOT within +/- 0.15 of the V/L test value, then go to Step 4.

4. Reseat V/L adaptor to nozzle and run two more V/L tests per Modified Exhibit 5 with lowest grade fuel on the same hose and average the two results with the first V/L test result from Step 2.

5. Compare the ISD V/L value for that hose to the average of the three V/L test results (subtract ISD V/L value from average V/L test value and note difference on Form 4).

   Pass: If the ISD V/L value is within +/- 0.15 of the average of the 3 V/L test results, the ISD flow meter in that dispenser passes the operability test. Go to the next dispenser and repeat the procedure beginning at Step 2.

   Continue: If the ISD V/L value is NOT within +/- 0.15 of the average of the 3 V/L test results, then go to Step 6.

6. If a second fueling position is available on the dispenser, repeat the tests beginning at Step 2 for the second fueling position. If the second fueling position tests do not pass Steps 2 through 5, notify Station Owner that testing indicates vapor flow meter should be replaced.

Table 1: Accessing ISD Daily Report

Step	Button Pushed	Number of Times Pushed	Readout
1	Mode (M)	Multiple. Push until readout on right is shown.	"MM.DD.YYYY HH:MM:SS XM All Functions Normal"
2	Function (F)	Multiple. Push until readout on right is shown.	"ISD Daily Report Press <step> to cont."
3	Print (P)	Once. Copy of ISD Daily Report will print	"ISD Daily Report Press <step> to cont."
4	Mode (M)	Once. Exit to opening menu.	"MM.DD.YYYY HH:MM:SS XM All Functions Normal"

Table 2: Accessing Vapor Flow Meter Serial Numbers

Step	Button Pushed	Number of Times Pushed	Readout
1	Mode (M)	Multiple. Push until readout on right is shown.	"Diag Mode Press Function to Continue"
2	Function (F). (If system has password, readout on right will show. If not, go to Step 5.)	Once	"Password:******"
3	Type in Password	Once	Example: "Password:003406"
4	Enter (E)	Once	"System Diagnostic Press <Step> to Continue"
5	Function (F)	Multiple. Push until readout on right is shown.	"Smart Sensor Diagnostic" Press <Step> to cont."
6	Step (S)	Once. Information displayed for first flowmeter. " * " represents identification numbers for sensors, dispensers…	"S*: A* Disp. *-* Type: Air Flow Meter
7	Step (S)	Once. Serial Number is displayed.	S*: AX Disp. *-* Serial Number: XXXX
8	Backup (B)	Once.	"S*: AX Disp. *-* Type: Air Flow Meter
9	Tank/Sensor (T)	Once. Information displayed for second flowmeter	S**: A** Disp. **-** Type: Vapor Pressure
10	Repeat Steps 8-9 for each flowmeter.		
11	Mode (M)	Once. Exit to opening menu.	"MM.DD.YYYY HH:MM:SS XM All Functions Normal"

Additional V/L Testing

Throughout the evaluation period, additional V/L testing will be performed monthly for 18 months in accordance with Attachment 1, Modified Exhibit 5 of Executive Order VR-202. For each additional test, testing staff will randomly select the gasoline grade. Staff will perform at least 10 V/L test runs during each site visit. The V/L tests run in accordance with the Vapor Flow Meter Operability Test, described above, can count toward the total of 10. A test run is conducting one V/L test per fueling point. If possible, Staff will conduct each test run at a different fueling point. Repeating test runs

at the same fueling point may be necessary due to lack of available fueling points or other site-specific conditions.

Return nozzle to dispenser and wait at least 1 minute after each test before beginning the next test to ensure that the ISD system recognizes it as a separate fueling. For purposes of recording fuel events, ARB staff recommends District staff use the time of dispenser authorization (when the totalizer zeroes out) as the start time. For each run, record required information on the Healy V/L Field Data Sheet (found in Attachment 1).

ARB staff will compare the V/L results from the Healy V/L Field Data Sheet to the ISD system TLS V/L. Within two days after completing the V/L tests, fax the raw data sheets to Vince Bunac of the ARB at (916) 322-2444. ARB staff will compile the data from all testing agencies and forward the consolidated data to participants every three months.

Please note that pouring the gasoline back into the UST can result in pressure changes. These pressure changes may cause the TLS system to indicate a warning.

6. Identification of ORVR and non-ORVR vehicles

Vince Bunac of ARB at (916) 327-7420 should be contacted prior to performing a site visit to facilitate matching the field data with the electronic data. The TLS system data will be provided by Veeder-Root or remotely accessed by the ARB staff. Upon arriving at a test site, testing staff should synchronize timepieces with the ISD system clock to ensure proper correlation of test data to ISD data.

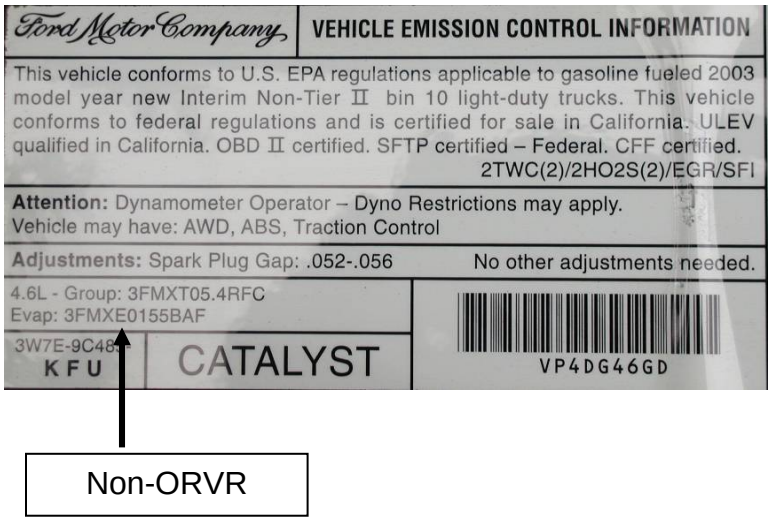
Each test site will be visited at monthly intervals for 18 months to determine the ISD system response to ORVR vehicles. Testing staff will witness a minimum of 20 refuelings per visit. Vehicle information shall be recorded on the ORVR Vehicle Determination Data Sheet (Form 1). At the end of the 18 months, the information recorded on the ORVR Determination Data Sheet must include information on a minimum of 100 ORVR vehicles and 100 non-ORVR vehicles. If the minimum number of ORVR vehicle and non-ORVR vehicle quotas is not met, testing staff will continue to visit the test site and record refueling information until they are met.

During vehicle refueling, the opposite side of the dispenser must be inactive by coning off the fueling point well enough to prevent dispensing during the test. Vehicle fuelings that are three gallons or less will not be counted.

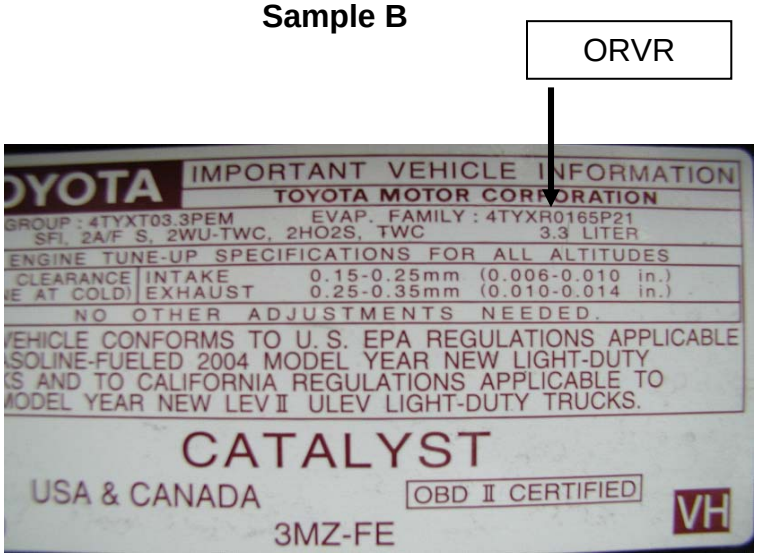
For vehicles manufactured during the ORVR phase–in periods (identified in the “Evap Family Code” column of Table 3), testing staff will determine if the vehicle is equipped with ORVR with the permission of the vehicle owner. If the owner refuses to provide permission, check the next vehicle. This determination is made by checking the emission label attached to the vehicle’s hood or engine compartment. Look for the “Evap Family” code. If the fifth digit is an “E” or “V”, it is Non-ORVR as shown in

Sample A below. If the fifth digit is an "R", then the vehicle has ORVR as shown in Sample B below.

Sample A



Sample B



Staff must check the emissions label for all vehicles that fall under the EVAP Family Code Required column and record the fifth digit on Form 1. If the emissions label is missing or unreadable, enter "NV" (Not Verified) in the appropriate column of Form 1 and do not count that vehicle as a recorded vehicle fueling.

Table 3: EVAP Family Code Requirements

Vehicle Class	non-ORVR Vehicles EVAP Family Code not Required	EVAP Family Code Required	ORVR Vehicles EVAP Family Code not Required
Passenger Car	< 1996	1997, 1998, 1999	> 2000
Light Duty Trucks (0 - 6000 GVWR*)	< 2000	2001, 2002	> 2003
Light Duty Trucks/ Medium duty Vehicles (6001 – 8500 GVWR)	< 2003	2004, 2005	>2006

* "GVWR" stands for Gross Vehicle Weight Rating and can be found printed on label affixed to driver's side door jamb.

After recording 20 vehicle fuelings, testing staff will forward the resulting data to ARB where ARB staff will match the beginning fueling time and the gallons dispensed data from the ORVR Vehicle Determination Data Sheet to the corresponding readings from the Veeder-Root TLS. Within two days of the field test, fax the raw data sheet to Vince Bunac of the ARB staff at (916) 322-2444. ARB will staff will compile data from all test sites and forward the compiled data to participants every three months.

7. Pressure Sensor Verification

Testing staff shall conduct pressure sensor verification testing once monthly, for 18 consecutive months, minimum. This test should be conducted prior to performing any V/L testing. The Pressure Sensor Verification test should only be done after the completion of the Vapor Pressure Sensor Ambient Reference Test and only if the Vapor Pressure Sensor is reading properly (See Section 8.) Upon arriving at a test site, testing staff will synchronize timepieces with the ISD system clock to ensure proper correlation of test data to ISD data. Dispensing of gasoline can continue as usual during test.

Testing staff will record the vapor pressure at the vapor poppet (see Figure 1.)

The basic procedure is summarized below. Two test personnel are required, minimum, one to monitor and record ambient temperature and UST pressure at manometer, and one to monitor corresponding pressure reading from the pressure sensor via the TLS console readout. For a more detailed description, which includes recommended pre-test procedures, equipment descriptions, and calibration procedures; see Attachment 2, Pressure Sensor Verification.

A. Access pressure sensor readout via TLS console in accordance with Table 3.

B. Attach the dust cap to the vapor adaptor (Figure 2). This equipment should be connected in a manner that will minimize bleeding down the ullage pressure.

Figure 1: Typical Modified Vapor Adaptor Dust Cap (Bottom View)

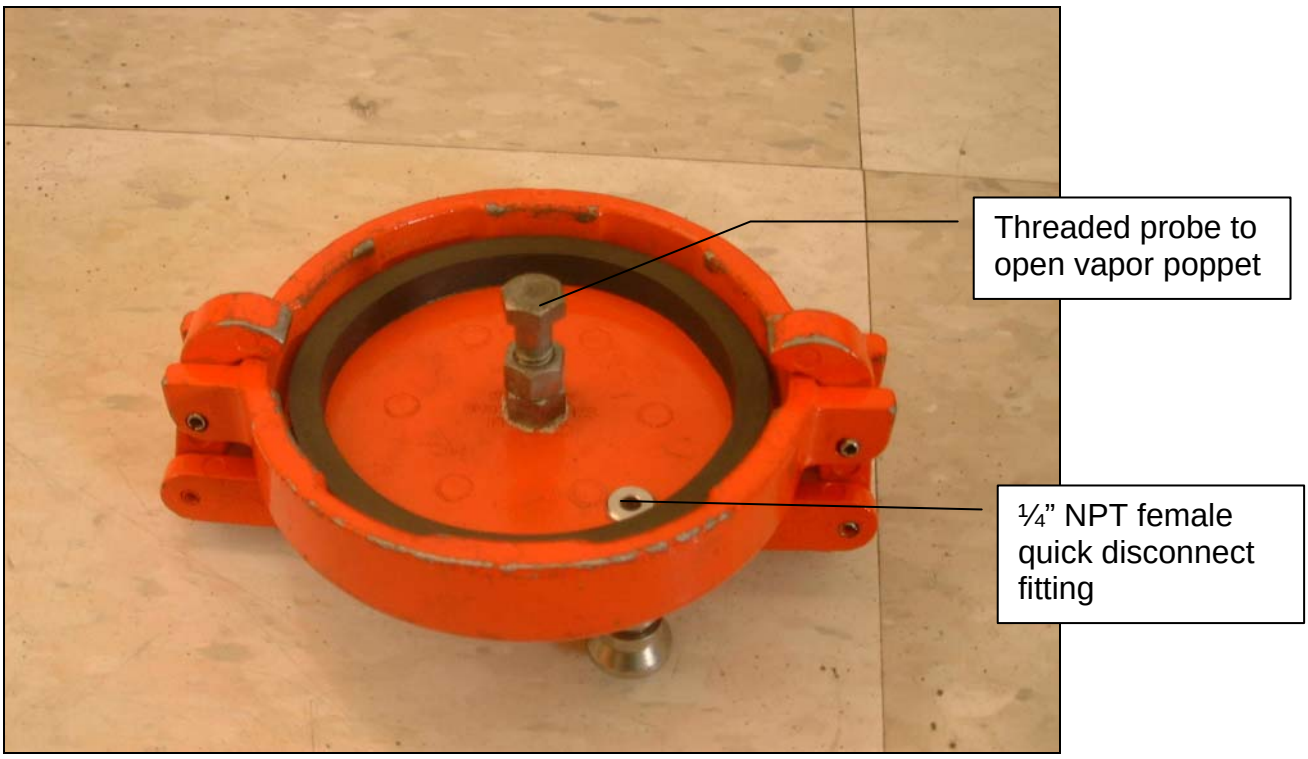
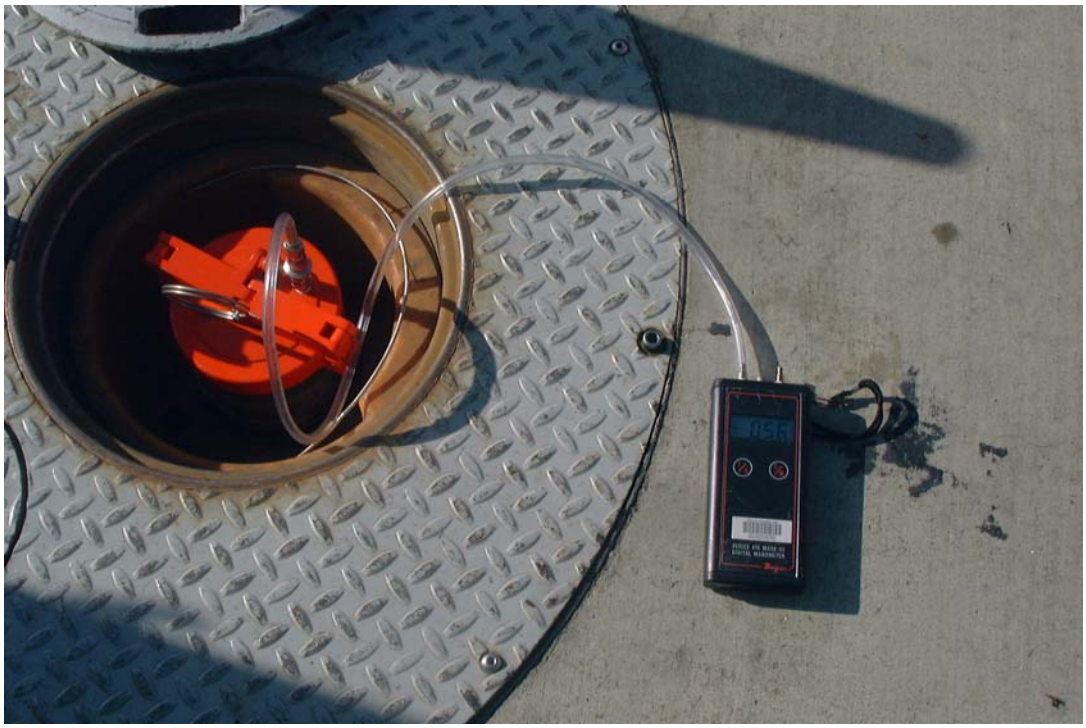


Figure 2: Typical Field Installation of UST Pressure Measurement Assembly



C. Proceed with monitoring pressure for ten minutes and record the simultaneous readings from the manometer and the TLS on Form 2. Record pressure at beginning and end of test period. Note: The negative pressure reading limit of the TLS is -6.00 inches of water column (WC). The positive pressure reading limit of the TLS is +6.00 inches of WC.

D. Record temperature at the beginning and end of test period. This test will be invalid if temperature differential exceeds 5° F.

E. If manometer pressure reading at the end of the test period differs by 1.5" from the manometer pressure reading measured at the beginning of the test period, a UST Pressure Measurement Assembly pressure leak may exist. This test will be invalid. The UST Pressure Measurement Assembly should be leak tested as follows.

F. If the manometer pressure reading is positive, apply soap solution to the dust cap and vapor adaptor and visually check for leaks (formation of bubbles). If the manometer pressure reading is negative, seal the UST Pressure Measurement Assembly in a bag with rubber band or tape secured around vapor adaptor below dust cap/vapor adaptor interface and visually check for leaks (bag deflation). See Figure 3. Correct leak and repeat Steps A through E.

Figure 3: Leaking UST Pressure Measurement Assembly in Secured Bag

Within two days of the field test, fax the raw data sheet to Vince Bunac of the ARB staff at (916) 322-2444. ARB staff will compile data from all testing agencies and forward the compiled data to participants every three months.

8. Vapor Pressure Sensor Ambient Reference Test

The Vapor Sensor Ambient Reference Test, as defined in Exhibit 9 of Executive Order VR-202-A and described below, shall be performed once monthly, for 18 consecutive months, minimum. The forms to check-off and record results from these procedures are enclosed.

Vapor Pressure Sensor Ambient Reference Test

The following procedure shall be used at field sites to determine if the Vapor Pressure Sensor is reading properly in accordance with Veeder-Root ISD specifications. As procedure is being executed, check boxes/record data as specified on Form 3.

1. Access the Vapor Pressure Sensor in the dispenser. Record which dispenser contains the pressure sensor on the Form 3.

2. Remove the cap from the ambient reference port of the Vapor Pressure Sensor valve and open the valve to atmosphere by turning it 90 degrees so that the flow arrows point to both the Vapor Pressure Sensor sensing port and the ambient reference port (see Figure 4).

3. Start at the “DIAG MODE” menu at the TLS Console front panel to enter the ‘Smartsensor Diagnostic” as shown in Table 4 to view pressure sensor serial number. Record on Form 3.

4. Start at the “DIAG MODE” menu at the TLS Console front panel to enter the ‘Calibrate SmartSensor’ menu as shown in Table 5 to view the non-calibrated pressure value.

5. Verify that the pressure value is between +0.2 and -0.2 inches water column (IWC). Record on Form 3. If the pressure value is not within this range, replace the cap on the ambient reference port of the Vapor Pressure Sensor valve. Restore the Vapor Pressure Sensor valve by turning it 90 degrees so that the flow arrows point to both the Vapor Pressure Sensor sensing port and the UST vapor space sensing line (ref. Figure 4). Notify Station Owner that testing indicates Vapor Pressure Sensor should be replaced.

6. Press the <MODE>key to leave the “Calibrate SmartSensor’ menu. Note: Do not calibrate the sensor!

Figure 4: Vapor Pressure Sensor Valve position

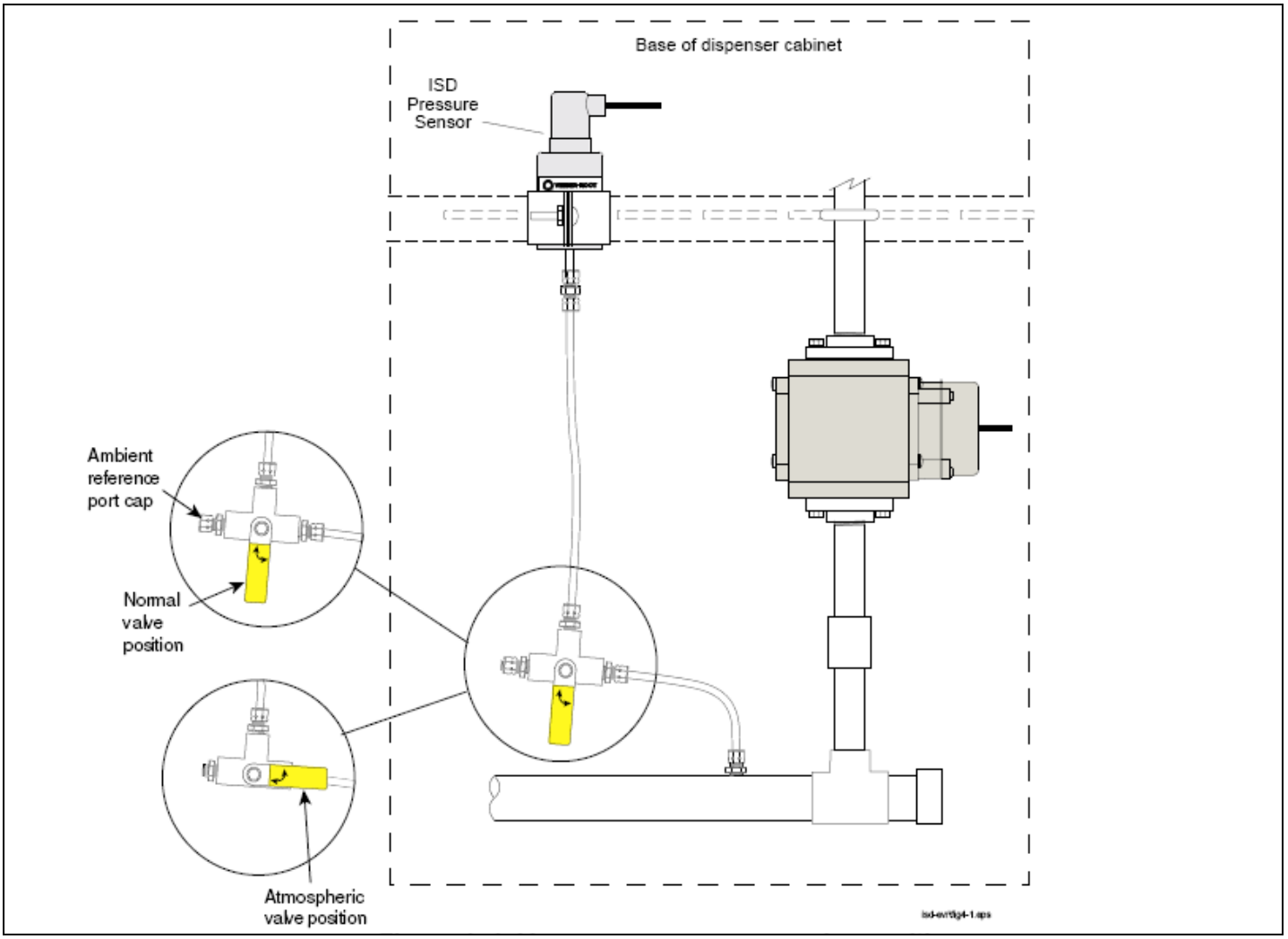


Table 4: Accessing Pressure Sensor Serial Number

Step	Button Pushed	Number of Times Pushed	Readout
1	Mode (M)	Multiple. Push until readout on right is shown.	"Diag Mode Press Function to Continue"
2	Function (F). (If system has password, readout on right will show. If not, go to Step 5.)	Once	"Password:******"
3	Type in Password	Once	Example: "Password:003406"
4	Enter (E)	Once	"System Diagnostic Press <Step> to Continue"
5	Function (F)	Multiple. Push until readout on right is shown.	"Smart Sensor Diagnostic" Press <Step> to cont."
6	Step (S)	Once.	
7	Tank/Sensor (T)	Multiple. Push until "Type" indicates vapor pressure sensor. " * " represent identification numbers for sensors, dispensers…	S*: P* Disp. *-* Type: Vapor Pressure
8	Step (S)	Once. Serial Number is displayed.	S*: P* Disp. *-* Serial Number: XXXX
9	Mode (M)	Once. Exit to opening menu.	"MM.DD.YYYY HH:MM:SS XM All Functions Normal"

Table 5: Accessing Non-calibrated Pressure Reading

Step	Button Pushed	Number of Times Pushed	Readout
1	Mode (M)	Multiple. Push until readout on right is shown.	"Diag Mode Press Function to Continue"
2	Function (F). (If system has password, readout on right will show. If not, go to Step 5.)	Once	"Password:******" .
3	Type in Password	Once	Example: "Password:003406"
4	Enter (E)	Once	"Diag Mode Press Function to Continue"
5	Function (F)	Multiple. Push until readout on right is shown.	"Smart Sensor Diagnostic" Press <step> to cont."
6	Step (S)	Once. "*" represents identification numbers for sensors, dispensers…	"S*: A* Disp. *-* Type: Air Flow Meter
7	Tank Sensor (T)	Multiple. Push until readout on right is shown.	"S*: P* Disp *-* Type: Vapor Pressure"
8	Step (S)	Multiple. Push until readout on right is shown.	"Calibrate Smartsensor Press Enter"
9	Enter (E)	Once. Real time pressure sensor measurement is shown in inches of W.C. Updates automatically.	"S*:VRPS No. 1 Pressure: X.XXXX"
10	Mode (M)	Once. Exit to opening menu.	"MM.DD.YYYY HH:MM:SS XM All Functions Normal"

9. Summary of Testing Requirements

The testing requirements and recommended frequency of each test are summarized in Table 6.

Table 6: Summary of Required Tests

TEST	Protocol Section Reference	Attached Report Form #	Number of Events per Month	Number of Months	Total Number of Events
Vapor Flow Meter Operability Test	5	4	1 to 6 (V/L test runs per dispenser, depending on results)	18	18-108 (per dispenser)
Additional V/L Ratio Testing	5	Included in Attach. 1	Minimum 10 (test runs)*	18	180
Identification of ORVR Vehicles Verification	6	1	20 (refueling observed)	18	360**
Pressure Sensor Verification	7	2	1	18	18
Vapor Pressure Sensor Ambient Reference Test	8	3	1	18	18

* V/L Tests run in accordance with the Vapor Flow Meter Operability Test can count towards the total of 10.

** Minimum 100 ORVR and 100 non-ORVR

Required Testing Sequence:

1) Vapor pressure sensor ambient reference test
2) Pressure sensor verification per attachment 2
3) Vapor flow meter operational test
4) Additional V/L testing per modified exhibit 5
5) ORVR and Non-ORVR identification can be conducted throughout the testing period

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Attachment 1

Vapor to Liquid Volume Ratio for Healy Phase II EVR System Including Veeder-Root ISD System

Modified Exhibit 5 of Executive Order VR-202-A

Definitions common to all certification and test procedures are in:

D-200 Definitions for Vapor Recovery Procedures

For the purpose of this procedure, the term "ARB" refers to the California Air Resources Board, and the term "Executive Officer" refers to the ARB Executive Officer, or his or her authorized representative or designate.

1. PURPOSE AND APPLICABILITY

1.1 For purposes of evaluating In-Station Diagnostic Systems (ISDs) in accordance with the requirements of the ISD In-Use Evaluation Protocol, this test procedure is used to quantify the Vapor to Liquid (V/L) Volumetric Ratio of the Healy Phase II EVR System Including Veeder-Root In-Station Diagnostics (ISD) installed at gasoline dispensing facilities (GDF).

2. PRINCIPLE AND SUMMARY OF TEST PROCEDURE

2.1 A tight fitting adaptor is placed on the spout of a dispensing nozzle. The adaptor, which isolates vapor flow to the nozzle vapor collection ports, is connected to a volume gas meter. Gasoline is dispensed through the nozzle and the volume of vapors drawn through the vapor collection boot by the Phase II system vacuum pump is measured. The volume of vapor is recorded and compared with the volume of gasoline dispensed to determine the V/L Volumetric Ratio.

2.2 The test is conducted with the pressure/vacuum (P/V) vent valve(s) on the storage tank vent pipes.

2.3 The test procedure requires no modifications to the GDF being evaluated.

2.4 The test procedure will be conducted on a fueling point on one side of the dispenser with the other side of the dispenser not dispensing fuel. Conducting the test this way will be evaluating the V/L of the fueling point with the VP1000 vacuum pump running on its high speed setting.

3. BIASES AND INTERFERENCES

3.1 Nozzle spouts that are damaged such that the V/L adaptor cannot fit over the nozzle spout preclude the use of this test.

3.2 Refueling points not capable of achieving dispensing rates (see Equation 9-2) required for conducting the V/L test, as specified in Exhibit 2 of ARB Executive Order VR-202-A, preclude the use of this test for determining in-use compliance of certified systems.

3.3 Bagging, or otherwise sealing any nozzle associated with the vacuum pump serving the nozzle being tested, may bias the test results towards compliance. **The V/L test to verify compliance shall be conducted without "bagging" any of the nozzles served by a common vacuum device.**

3.5 If the nozzle being tested introduces liquid into the V/L adaptor, gas vapor meter or the adaptor supply hose, the V/L of that nozzle shall be deemed a failure of the V/L standard.

3.6 Do not drain or remove liquid in either the vapor passage of the hoses or the dispenser vapor piping prior to performing the test. Draining of this liquid gasoline will bias the test toward compliance.

3.7 The O-ring in the V/L adaptor that is not properly lubricated may bias the results toward noncompliance. See Section 5.7 for lubrication requirements. Motor oil (any weight) is acceptable for lubricating the O-ring. Contact Healy Technical Services with any questions about other lubricants that may be used in conducting this test.

3.8 Conducting V/L testing with an improperly conditioned portable test tank (not saturated with gasoline vapors) will bias the test results of the as found V/L of the fueling point. Refer to Section 6.6 for proper portable test tank conditioning.

4. SENSITIVITY, RANGE, AND ACCURACY

4.1 The maximum rated capacity of the gas volume meter shall be at least 800 CFH and not greater than 3,000 CFH.

4.2 The minimum rated capacity of the gas volume meter shall be 25 CFH.

4.3 The minimum readability of the gas volume meter shall be 0.01 cubic feet.

4.4 Accuracy, determined during calibration, must be $\pm$ 5 percent of the gas volume meter reading.

5. EQUIPMENT

5.1A Vapor to Liquid Adaptor. Only the Healy Systems, Inc. V/L Test Sleeve, Part No. 8034-1, can be used to conduct V/L testing on the Healy Phase II EVR System Including Veeder-Root ISD. The nominal inside diameter of the flexible tubing shall be between 0.75 and 1.00 inches, and the length of the tubing shall be between 3.0 and 6.0 feet. Figure 1 shows the Healy V/L adaptor assembled on the 900 EVR nozzle.

5.1B Surrogate Spout. Only the Healy Systems, Inc. V/L Surrogate Spout Assembly, Part No. 8175, can be used to conduct the pre-test and post-test leak check. Figure 1 shows the Healy Surrogate Spout.

Figure 1 shows the Healy V/L adaptor assembled on the 900 EVR nozzle and the Surrogate Spout.

5.2 Gas Volume Meter. Use a gas volume meter to measure the volumetric flow rate through the V/L adaptor. The meter shall be equipped as shown in Figure 2 and the maximum allowable pressure drop(s) (determined by the manufacturer) across the meter shall be:

For a meter with a maximum rated capacity of 1000 CFH through 3,000 CFH:
1.10 inches H_2O at a flowrate of 3,000 CFH
0.05 inches H_2O at a flowrate of 30 CFH

For a meter with a maximum rated capacity of 800 to 1,000 CFH:
0.70 inches H_2O at a flowrate of 800 CFH
0.04 inches H_2O at a flowrate of 16 CFH

5.3 Volume Gas Meter Inlet Manifold. This manifold is designed to return the vapors displaced from the portable gasoline tank assembly, at atmospheric pressure, to the inlet of the gas volume meter. This manifold shall be two (2.0) inches minimum inside diameter pipe. The intake passage of the manifold shall be no shorter than 6.0 inches and no longer than 18.0 inches. See Figures 2 and 4.

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Figure 1

Healy Vapor To Liquid (V/L) Adaptor and Surrogate Spout Assembly

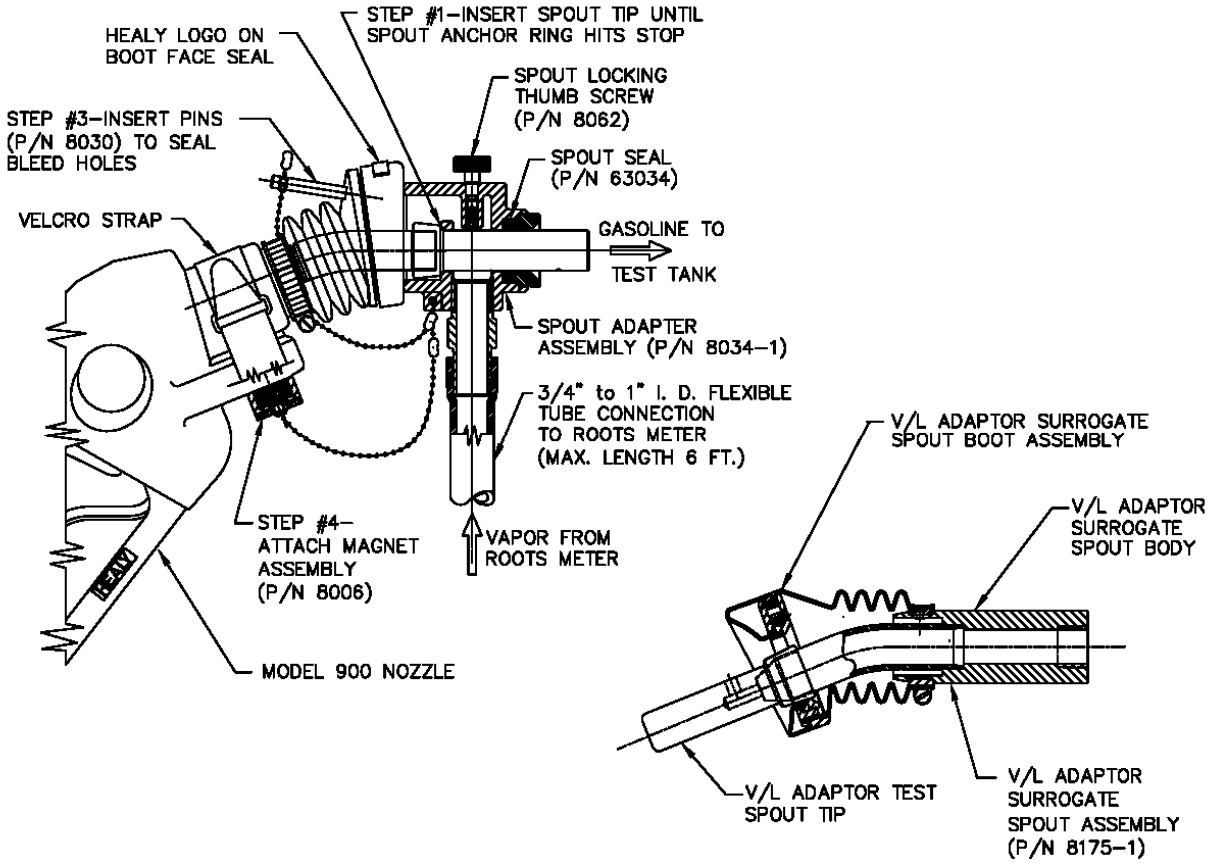
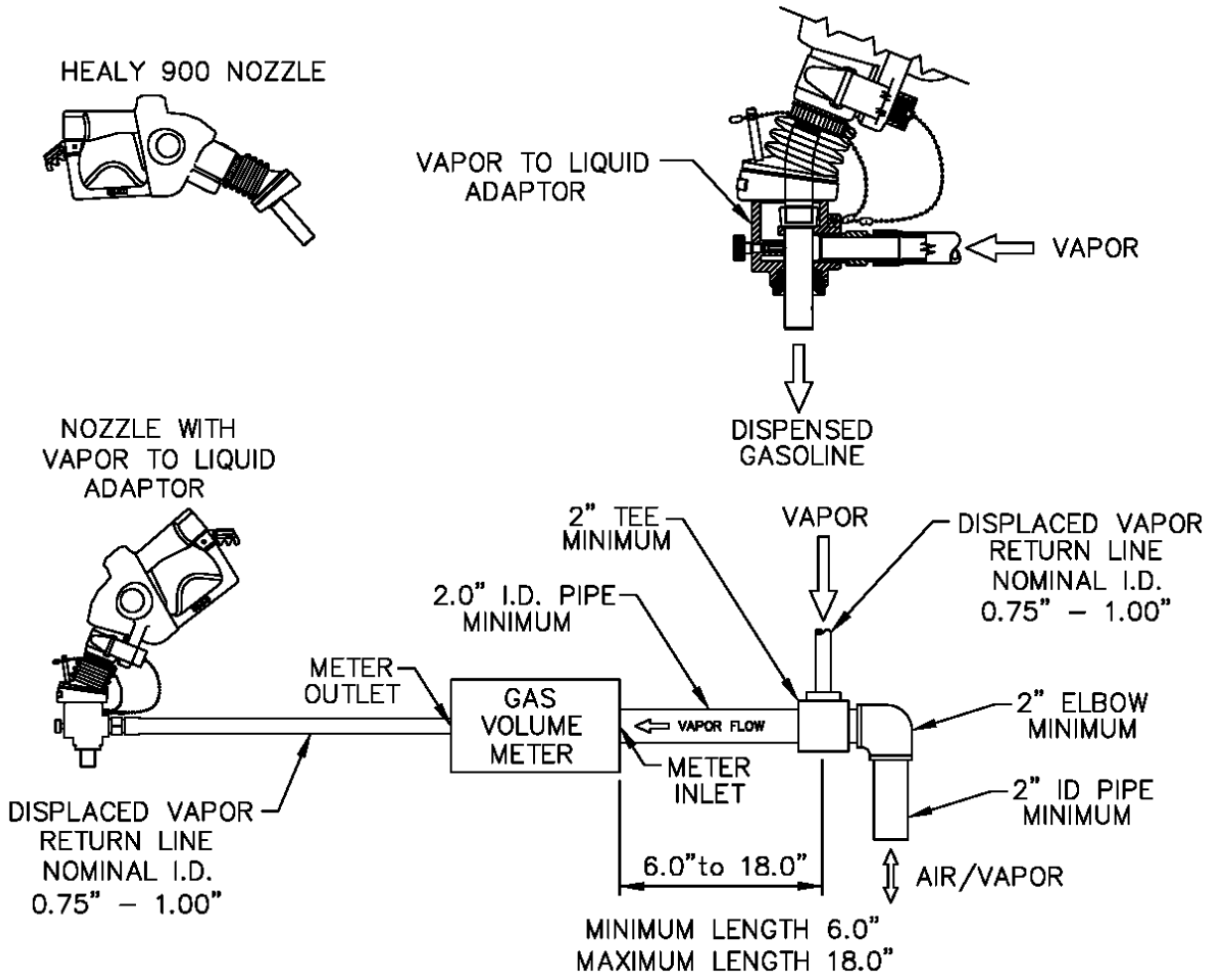


Figure 2

Gas Volume Meter and Vapor To Liquid Adaptor



5.4 Liquid Volume Meter. Use the totalizer on the gasoline dispenser to measure the volume of gasoline dispensed during the test.

5.5 Portable Gasoline Tank Assembly. A portable tank, meeting fire safety requirements for use with gasoline, shall be used to receive the gasoline dispensed during this test. The tank shall have sufficient volume so that at least 4.5 gallons may be dispensed prior to activating the primary shutoff mechanism of the dispensing nozzle. Portable tanks shall have a permanent label or mark indicating the total fuel capacity in gallons. Tank material, likely to provide contact with the nozzle spout, or V/L adaptor, during the entire dispensing event, shall be constructed of aluminum or brass or other materials approved by the local fire codes for such application. The tank and required plumbing configuration is shown in Figure 3 and Figure 4. This configuration permits a portion of the vapors displaced during testing to be returned to the underground storage tank (UST). The minimum and maximum dimensions shown in Figure 2 and Figure 4 shall be adhered to in all cases.

5.6 Stopwatch. Use a stopwatch accurate to within 0.2 seconds.

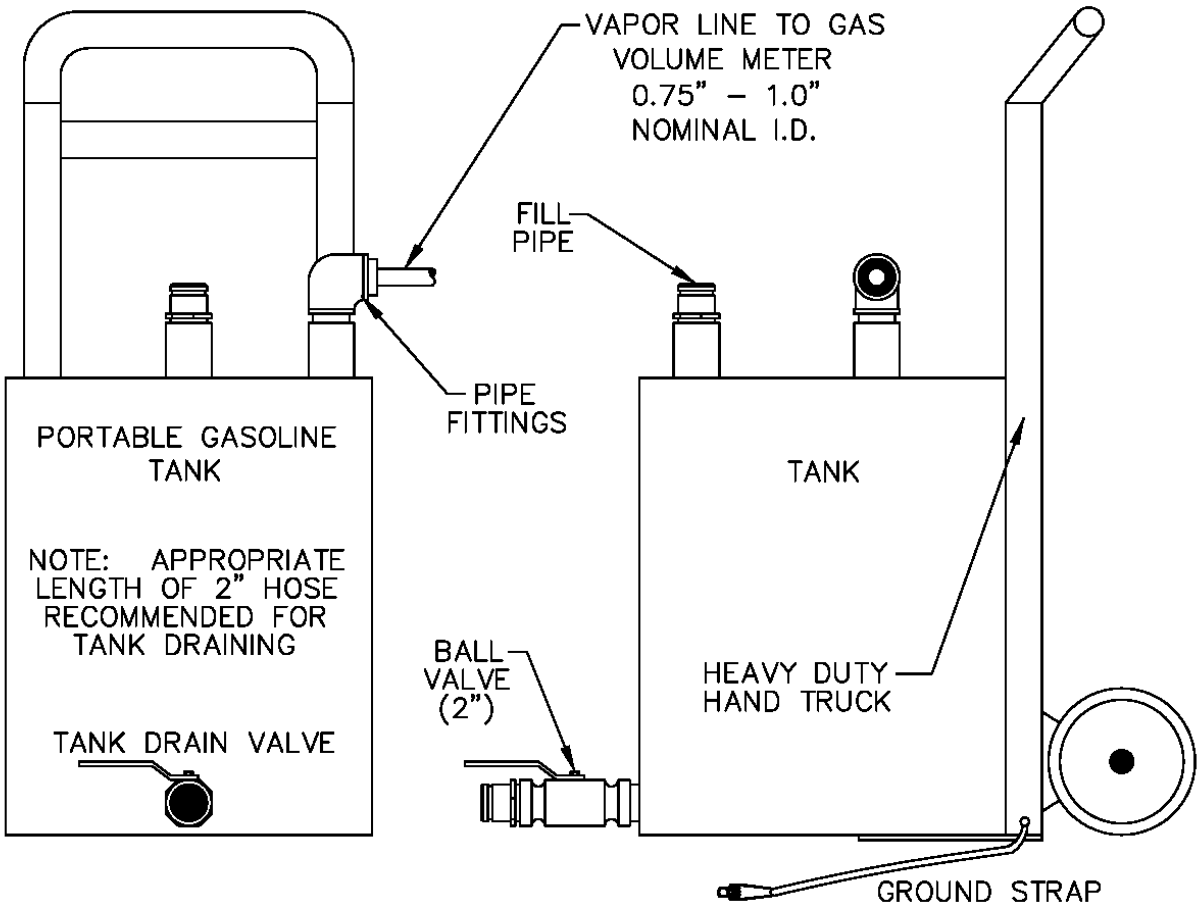
5.7 Lubricant. Appropriate lubricant shall be used to ensure a leak-tight seal between the O-ring in the V/L adaptor and the nozzle spout. Motor oil (any weight) is acceptable for lubricating the O-ring. Contact Healy Technical Services with any questions about other lubricants that may be used in conducting this test.

5.8 Leak Detection Solution. Any liquid solution designed to detect gaseous leaks may be used to verify the pressure integrity of test equipment during this test.

5.9 Pressure Measuring Device. An electronic pressure measuring device with a full scale range that shall not exceed 0-10 inches WC with a minimum accuracy of $\pm$0.5 percent of full scale. A 0-20 inch WC device may be used provided the minimum accuracy is $\pm$0.25 percent of full scale.

Figure 3

Portable Tank Assembly



6. PRE-TEST PROCEDURES

6.1 Assemble the portable tank assembly and gas volume meter as shown in Figure 4. The minimum and maximum dimensions shown in Figure 4 shall be adhered to in all cases. **Ensure that the ground strap is properly connected to an acceptable ground**.

Note: A one-time test to verify proper design of the tee connection at the gas volume meter shall be conducted. Disconnect the V/L adaptor from the nozzle. Insert the nozzle into the portable test tank so that there is no visible gap between the nozzle boot/portable test tank fill pipe interface. Dispense between four and one-half and five (4.5 - 5.0) gallons into the portable test tank. The tee connection design passes the test if the displacement on the gas volume meter is less than 0.01 cubic feet. The result of this test shall be kept with the test equipment. If the tee connection is altered or changed, the above test must be repeated to ensure proper design.

6.2 The gas volume meter shall be calibrated, within 180 days prior to conducting this procedure. In addition, calibration shall be conducted after any repairs or alterations (changes to the operation or configuration of the meter) to the meter. Calibrations, at a minimum, shall be conducted at flowrates of 30, 60, and 90 CFH (3.7, 7.5, and 11.2 gallons/minute) in accordance with one of the following:

(a) ARB Air Monitoring Quality Assurance, Volume VI, Standard Operating Procedures for Stationary Source Emission Monitoring, January 1979, or

(b) US EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods, or

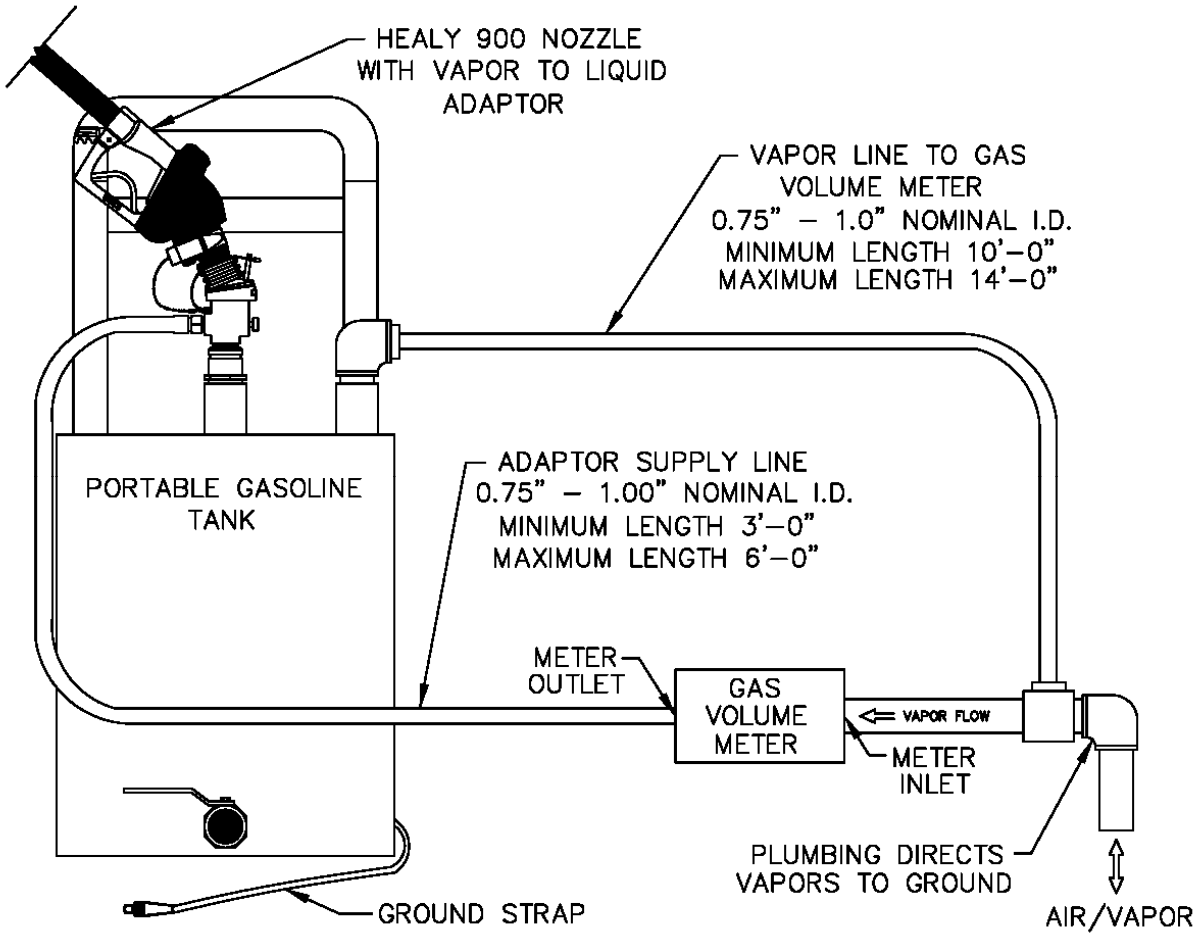
(c) EPA Method 2A, Measurement of Gas Volume Through Pipes and Small Ducts (40 CFR Part 60, Appendix A), or

(d) Appropriate calibration procedures in accordance with California Department of Food and Agriculture, Division of Measurement Standards and County Department of Weights and Measures (title 4, CCR, section 3.33).

A copy of the most current calibration shall be kept with the meter.

Figure 4

Assembled Vapor to Liquid Volume Ratio Test Equipment



6.3 Verify that the O-ring in the V/L adaptor is present and in good condition. An O-ring with nicks, tears, or other deformations shall be replaced prior to the test. The O-ring shall be properly lubricated (see Section 5.7) to ensure a vapor tight connection.

6.4 Conduct a pre-test leak check of the V/L adaptor, the gas volume meter and adaptor supply hose by connecting the V/L adaptor to a surrogate spout as shown in Figure 5. and described in Section 5.1B. Raise the test pressure to 5.00" ±0.50 WC. There shall not be a pressure drop of more than 1.00" WC from the above starting pressure for 30 seconds from the start of the test. If the leak test passes, proceed with the V/L testing. If the leak test fails, proceed to isolate the source of the leak by pressurizing the test equipment again. Squirt liquid leak detector solution on interfaces and other potential leak sources and watch for the formation of bubbles. Once leak(s) are repaired, repeat the test procedure.

Note: Leak checks shall be conducted in a shaded area away from direct sunlight. Leak checks may be conducted during V/L testing to ensure leak integrity of test equipment.

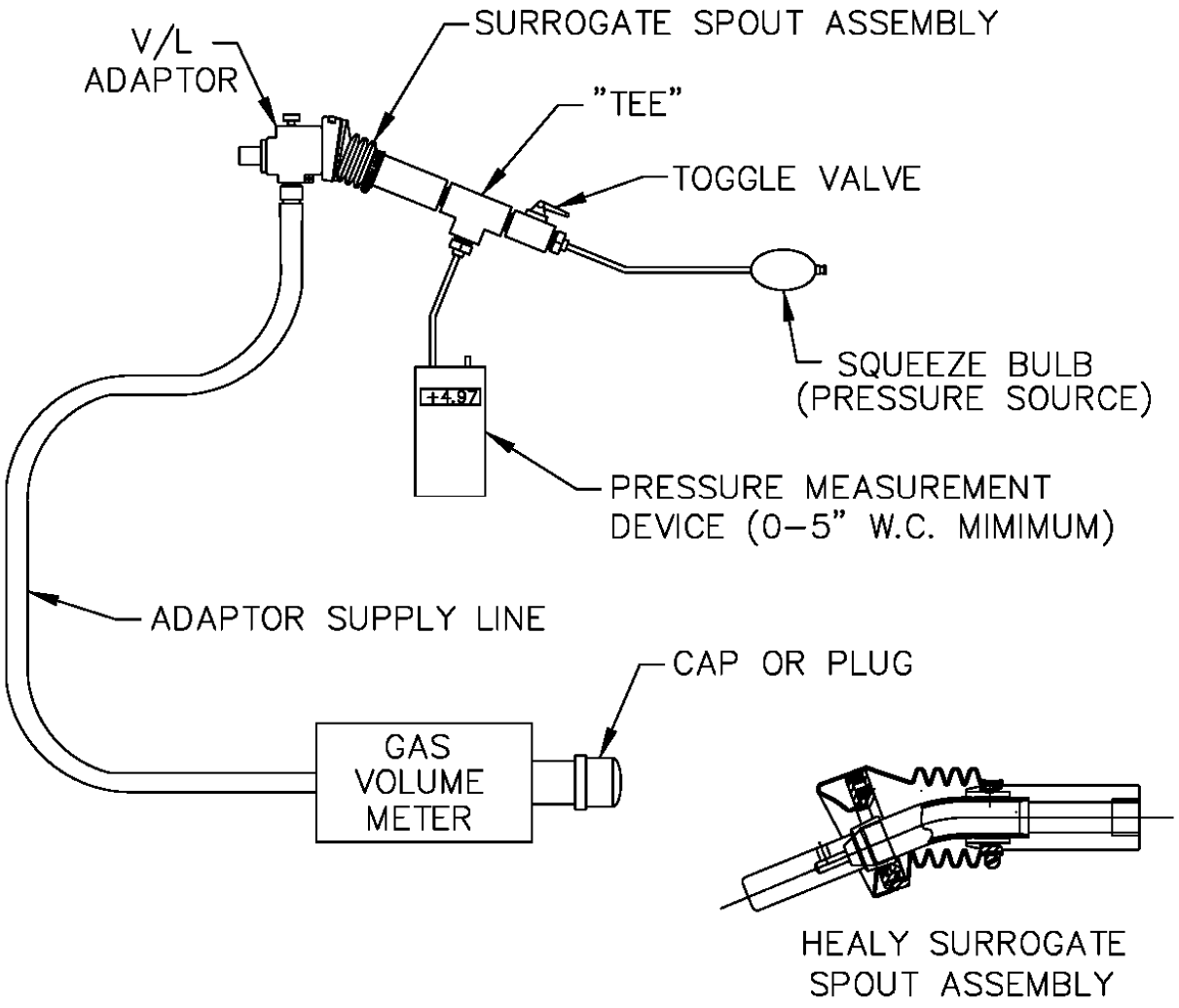
6.5 This test procedure shall be conducted with the storage tank pressure/vacuum (P/V) valve(s) installed and the Phase I vapor coupler(s) poppet(s) in the closed position with the adaptor dust cap(s) installed.

6.6 With the portable tank and V/L test equipment assembled, dispense gasoline into the portable test tank until at least 10% of the tanks total capacity has been reached. This will condition the portable tank with gasoline vapors. This conditioning shall be conducted each time the test tank is emptied prior to conducting testing at each facility.

6.7 All pressure measuring device(s) shall be bench calibrated using a reference gauge, inclined manometer or NIST traceable standard at least once every six (6) months in accordance with manufacturer's recommended calibration procedures. Calibration must be performed at minimum of three calibration points (e.g. 25, 50, and 75% of full scale). Accuracy shall be within ± 0.05 inches WC.

Figure 5

Vapor To Liquid Adaptor and Gas Volume Meter Leak Test Assembly



7. TEST PROCEDURES

7.1 Carefully connect the V/L adaptor to the nozzle spout as shown in Figure 1, isolating the vapor path of the nozzle and ensuring a tight connection.

7.2 Record the initial reading from the index of the gas volume meter on the Healy V/L Field Data Sheet at the end of this document. This initial reading shall be taken before each test. Do not use the final reading from the preceding test as the initial reading for the current test, unless it has been verified. This is necessary since the meter index may have moved due to the low pressure drop through the meter.

7.3 Reset the stopwatch and, if appropriate, reset the totalizer on the dispenser.

7.4 Holding the nozzle lever in the maximum hand-held position in order to dispense at the highest possible flow rate and begin dispensing into the portable gasoline tank. **Ensure that the nozzle spout is in contact with the grounded tank assembly during dispensing**. Start the stopwatch when the totalizer indicates dispensing has started.

7.5 Dispense between four and one-half (4.5) and five (5.0) gallons of gasoline.

If the nozzle being tested introduces liquid into the V/L adaptor, the gas volume meter or the adaptor supply hose, the V/L of that nozzle shall be deemed a failure.

7.6 Simultaneously stop both the stopwatch and gasoline dispensing.

7.7 The following data for each test shall be recorded on the Healy V/L Field Data Sheet:

7.7.1 Dispenser (pump) number

7.7.2 Fuel grade

7.7.3 Nozzle model and serial number

7.7.4 Initial gas volume meter reading, in cubic feet

7.7.5 Initial totalizer reading from the dispenser, in gallons

7.7.6 Final gas volume meter reading, in cubic feet

7.7.7 Final totalizer reading from the dispenser, in gallons

7.7.8 Elapsed time during dispensing, in seconds

Note: Units other than cubic feet, gallons, and seconds may be used, provided that Equation 9-1 is appropriately modified.

8. POST-TEST PROCEDURES

8.1 Remove the V/L adaptor from the nozzle.

8.2 Drain the dispensed product into the appropriate gasoline storage tank at the facility. **Ground the portable tank assembly to the storage tank before draining**. Do not mix product grades in the portable tank assembly without approval of the facility owner and use caution to drain the portable tank into the correct facility storage tank. If blending valves are utilized to produce product grades that do not have a dedicated storage tank, product from the blended grade shall be returned to the lower octane tank.

8.3 After concluding testing at the facility, perform a post-test leak check of the gas volume meter and adaptor supply hose by connecting the V/L adaptor to a surrogate spout as shown in Figure 5. and described in Section 5.1B. Raise the test pressure to 5.00" ±0.50 WC. There shall not be a pressure drop of more than 1.00" WC from the above starting pressure for 30 seconds from the start of the test. The data collected during the V/L testing between the last valid test equipment leak check (see Section 6.4) and the post-test leak check is invalid if the test equipment fails this post-test leak check.

Note: Leak checks shall be conducted in a shaded area away from direct sunlight.

8.4 Prior to transportation, the inlet and outlet of the gas volume meter shall be carefully sealed to prevent foreign matter from entering the meter.

8.5 The Authority Having Jurisdiction (AHJ) may be contacted on the requirements for storage and transportation of the portable test tank. This would typically be the local fire department.

9. CALCULATING RESULTS

9.1 The V/L Volumetric Ratio shall be calculated as shown in Equation 9-1.

$$V/L = \left[\frac{y(Vf - Vi)}{G_f - G_i} \right] \times 7.481 \quad \textbf{[Equation 9-1]}$$

Where:

V/L	=	Vapor to Liquid Volumetric Ratio, dimensionless
y	=	Correction factor for gas volume meter. See Equation 9-3
V_i	=	Initial gas volume meter reading, cubic feet
V_f	=	Final gas volume meter reading, cubic feet
G_i	=	Initial totalizer reading from the dispenser, gallons
G_f	=	Final totalizer reading from the dispenser, gallons
7.481	=	Conversion factor from gallons to cubic feet, gallons per cubic foot

9.2 The gasoline dispensing rate during the V/L test shall be calculated as shown in Equation 9-2.

$$Q_g = \left[\frac{G_f - G_i}{t} \right] \times 60 \qquad \textbf{[Equation 9-2]}$$

Where:

Q_g = Gasoline dispensing rate, gallons per minute
G_I = Initial totalizer reading from the dispenser, gallons
G_f = Final totalizer reading from the dispenser, gallons
t = Elapsed time during dispensing event, seconds
60 = Conversion factor, seconds per minute

9.3 The correction factor (determined during gas volume meter calibration) for correcting observed values of the gas volume meter shall be calculated as shown in Equation 9-3.

$$y = \left[\frac{V_r}{V_m} \right] \qquad \textbf{[Equation 9-3]}$$

Where:

y = Correction factor for the gas volume meter's observed reading, dimensionless
V_r = True volume from current calibration of gas volume meter, cubic feet
V_m = Corresponding observed reading from gas volume meter, cubic feet

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GDF Name and Address	**Healy V/L Field Data Sheet** Tee Connection Test Result (See Section 6.1)_____ ft^3 Date of Last Gas Volume Meter Calibration _____ Correction Factor for Gas Volume Meter _____ Pressure Measurement Device Calibration Date _____	Testing Firm Name and Address: Phone No. ( )
Test Date/Time:		Test Performed by:
Pre-Test Leak Check: Initial/Final Pressures, in. H_2O __/ ___ **Post-Test Leak Check:** Initial/Final Pressures, in. H_2O __/__	**A/C #** _____ **P/O #** _____	District Test Witness _____ Applicable ARB EO # VR-202-A Allowable V/L Range 0.95 – 1.15

Pump #	Fuel Grade	Nozzle Serial #	For ISD Evaluation: Starting Time of Run	Initial Dispenser Totalizer, Gallons	Final Dispenser Totalizer, Gallons	Total Gas Pumped, Gallons	Time, Seconds	Dispensing Rate, gpm	Initial Meter Reading, ft3	Final Meter Reading, ft3	V/L

Attachment 2

Pressure Sensor Verification

1. Range and Accuracy

1.1 The minimum full scale range for digital manometer shall be 0.00 to 10.00 inches WC. The minimum accuracy shall be ±0.05 inches of WC.

1.2 The temperature measuring device shall have a maximum range of 0 to 150 ºF and shall be accurate to within 2 ºF.

1.3 The stop watch shall have an accuracy of 0.2 seconds.

2. Biases and Interference's

2.1 Leaking vapor adaptors will not allow test assembly to achieve a leak tight seal.

2.2 Improper connection of dust cap can result in accidental discharge of vapor due to positive pressure in UST's. Wait ten (10) minutes before retesting.

2.3 Temperature fluctuations during test period can result in erroneous values. All testing must be avoided when temperature differences exceeds 5° F.

3. Equipment

3.1 A dust cap or vapor coupler test assembly can be used provided a tight seal is achieved.

3.2 The dust cap shall be modified in the following manner:

3.2.1 Tap, thread, and install a ¾ inch NPT threaded probe in the center of the dust cap. The probe shall be of sufficient length to open approximately ½ inch of the dry break while allowing the cap to maintain a leak tight seal on the adaptor.

3.2.2 Tap, thread and install an ¼ inch NPT female quick connect fitting on the top of the dust cap, offset from the center probe.

3.2.3 Use approximately 24 inches of clear "Tygon tubing" or equivalent, sized to fit digital manometer pressure connection, to connect the manometer to the dust

cap. Connect one end of the "Tygon tubing" to a ¼ inch NPT male quick connect fitting and connect the other end to the digital manometer.

3.3 Digital Manometer (Electronic Pressure Measuring Device)

An electronic pressure measuring device with a full scale range that shall not exceed 0-10 inches WC with a minimum accuracy of ± 0.5 percent of full scale. A 0-20 inch WC device may be used provided the minimum accuracy is ± 0.25 percent of full scale.

3.4 Vacuum Grease or Petroleum Jelly

Use commercially available vacuum grease or petroleum jelly to apply to the dust cap gasket to maintain good seal.

3.5 Soap Solution mixture with spray bottle or "Snoop."

3.6 Temperature gauge or thermometer capable of measuring ambient temperature with a resolution of 2° F.

3.7 Stop watch with accuracy of 0.1 seconds.

3.8 Portable pressure test assembly (as depicted in figure 1, 2 of page 9).

4. Calibration Requirements

A copy of the most current calibration shall be kept with the equipment to verify that the calibrations have been done appropriately.

4.1 All pressure measuring device(s) shall be bench calibrated using a reference gauge, inclined manometer or NIST traceable standard at least once every six (6) months in accordance with manufacturer's recommended calibration procedures. Calibration must be performed at minimum of three calibration points (e.g. 25, 50, and 75% of full scale). Accuracy shall be within ± 0.05 inches of WC.

4.2 The temperature measurement device shall be checked against an NIST traceable temperature measuring device at an interval not to exceed 12 months.

5. Pre Test Procedures

5.1 During the duration of the test, the digital manometer and temperature measurement device shall remain in a shaded area away from direct sunlight.

5.2 Turn on digital manometer and allow instrument to warm up for five minutes.

5.3 Zero out digital manometer using adjustment pod on top of instrument in accordance with manufactures instructions. Drift may be minimized by re-zeroing immediately after

use by venting both pressure port to atmosphere and adjusting the knob until the display reads exactly zero.

5.4 Apply thin layer of vacuum grease or petroleum jelly to gasket located under the dust cap.

5.5 Attach male quick connect fitting attached to Tygon tubing to female quick connect fitting of dust cap.

5.6 Attach digital manometer to open end of Tygon tubing.

6. Test Procedure

6.1 Attach the dust cap to the vapor adaptor.

6.2 Record simultaneous pressure readings from the manometer and the TLS on Form 2. At a minimum, record pressure at beginning and end of test period.

6.3 Record temperature at the beginning and end of test period on Form 2. This test will be invalid if temperature differential exceeds 5° F.

6.4 If the manometer pressure reading at the end of the test period differs by 1.5” from the manometer pressure reading from the beginning of the test period, a pressure leak may exist. This test will be invalid. Proceed with trouble shooting of leak of UST Pressure Measurement Assembly.

6.5 Troubleshoot UST Pressure Measurement Assembly as follows:

6.5.1 If the manometer pressure reading is positive, apply soap solution to the dust cap and vapor adaptor and check for visual leaks. Correct all detected leaks and repeat steps 6.1 through 6.4.

6.5.2 If the manometer pressure reading is negative, bag UST Pressure Measurement Assembly and check for visual leaks. Correct all detected leaks and repeat steps 6.1 through 6.4.

Attachment 3

ISD Enforcement Policy

California Air Resources Board
PO Box 2815
Sacramento, CA 95812
www.arb.ca.gov

CAPCOA
980 9th Street, 16th Floor
Sacramento, CA 95814
916-449-9603

June 27, 2006

Mr. Jay McKeeman
Executive Vice President/Government Relations Director
California Independent Oil Marketers Association
3831 North Freeway Boulevard, Suite 130
Sacramento, California 95834-1933

Dear Mr. McKeeman:

RECOMMENDED ISD ENFORCEMENT POLICY DURING 18-MONTH EVALUATION

The California Air Resources Board (ARB) will implement an 18-month program to evaluate the in-use performance of In-Station Diagnostics (ISD) systems at selected gasoline dispensing facilities (GDF) equipped with vapor recovery. This evaluation is being supported by the California Air Pollution Control Officers Association (CAPCOA) and its air district membership. This evaluation period will commence on July 1, 2006, and may be extended by written agreement between ARB and CAPCOA. Although CAPCOA and ARB have no authority to bind individual air districts to specific enforcement action or enforcement discretion, CAPCOA and ARB are providing recommendations specific to construction and operating permit (permit) conditions and scope of appropriate enforcement actions. Nothing herein shall be deemed or construed as a recommendation that any air district refrain from enforcing against any violations. During this evaluation period, CAPCOA and ARB recommend that local air districts not take enforcement action based solely on data recorded by and retrieved from the ISD system except as specified below.

Background:

ISD systems are designed to provide continuous real time monitoring of critical gasoline vapor recovery system parameters and components and to alert the owner/operator when a failure mode as defined in ARB regulations (title 17, California Code of Regulations, section 94011) is detected so that corrective action can be taken. ISD systems record two types of gasoline vapor recovery system failure alarms. The first failure alarm will notify the GDF owner/operator of a potential vapor recovery system problem that requires maintenance. If the required corrective action is not taken within the specified time, the ISD system will trigger a second failure alarm and will terminate all fuel dispensing. If an owner/operator ignores the alarm and resets the system to resume fuel dispensing without the required repairs, the ISD system will record and store these events for a 12-month period.

During this ISD evaluation period, ARB and CAPCOA will gather in-use data from the ISD systems, including accuracy, precision and data reliability. The information collected will be used to develop long-term recommendations concerning the use of data recorded and retrieved from ISD systems. It may also be used to develop a recommendation to revise the applicable certification procedure to change the levels at which the ISD system alarms activate. ARB and CAPCOA will meet periodically with representatives of the gasoline dispensing industry and interested stakeholders to share data and discuss ISD system performance.

Construction and Operating Permit Conditions

When air districts issue permits for gasoline vapor recovery systems equipped with ISD they will specify conditions under which the GDF owner/operator can reset the system to allow for fuel dispensing.

If the GDF is equipped with ISD and is located in a county having a projected population for 2005 of less than 132,000 people (see attached Table 1), it is recommended that such permits incorporate the following requirements:

(1) Within two (2) hours of detecting that the first ISD failure alarm has activated, the facility attendant shall notify (e.g., direct contact, voice mail, e-mail, fax) the responsible company official or their designee and request service as soon as is reasonably possible to correct the problem. All information relating to the alarm event and reporting shall be promptly recorded on an air district-approved form, maintained at the GDF, and made available to the Executive Officer/Air Pollution Control Officer or their designee upon request. Only persons authorized by the applicable ARB Certification Executive Orders shall be allowed to make vapor recovery or ISD system repairs.

(2) If a second ISD failure alarm sounds indicating that the same problem still exists and gasoline dispensing is terminated, the ISD system may be reset to allow vehicle fueling to resume only if:

(a) All required repairs are made as soon as is reasonably possible but not later than seven (7) calendar days of the first ISD system alarm notification and all information associated with the repairs is recorded on an air district-approved form that shall be maintained at the GDF and made available to the Executive Officer/Air Pollution Control Officer or their designee upon request. The Executive Officer/Air Pollution Control Officer or their designee may also for good cause (e.g., the unavailability of a certified repair technician or required parts) on a case-by-case basis and at their sole discretion, allow the ISD system to be reset to allow gasoline dispensing to continue for a specified time beyond this seven (7)

day period if the required notification (see 1 above) was made within two (2) hours of detection of the first ISD failure alarm. In such case, the granting of the additional extension of time shall be in writing and shall include the reason the additional time was granted and the maximum time period gasoline dispensing may continue while necessary repairs are made. This written extension shall be kept with the ISD system records at the GDF and shall be made available to the Executive Officer/Air Pollution Control Officer or their designee upon request, or

(b) The dispenser(s) associated with the problem that triggered the failure alarm is isolated, removed from service and not operated until the required repairs are completed and, when completed, all information associated with the repairs is recorded on an air district-approved form that shall be maintained at the GDF and made available to the Executive Officer/Air Pollution Control Officer or their designee upon request.

Notwithstanding the above, the Executive Officer/Air Pollution Control Officer of an air district in which a county having a projected population for 2005 of less than 132,000 people (see attached Table 1) is located may elect at their sole discretion, to condition permits for GDFs in such county as if the county had a projected population for 2005 of greater than 132,000 people (i.e., subject to II. below).

II. If the GDF is equipped with ISD and is located in a county having a projected population for 2005 of greater than 132,000 people (see Table 1), it is recommended that such permits incorporate the following requirements:

(1) Within two (2) hours of detecting that the first ISD failure alarm has activated, the facility attendant shall notify (e.g., direct contact, voice mail, e-mail, fax) the responsible company official or their designee and request service as soon as is reasonably possible to correct the problem. All information relating to the alarm event and reporting shall be promptly recorded on an air district-approved form, maintained at the GDF, and made available to the Executive Officer/Air Pollution Control Officer or their designee upon request. Only persons authorized by the applicable ARB Certification Executive Orders shall be allowed to make vapor recovery or ISD system repairs.

(2) If a second ISD failure alarm sounds indicating that the same problem still exists and gasoline dispensing is terminated, the ISD system may be reset to allow vehicle fueling to resume only if:

(a) All required repairs have been made and all information associated with the repairs is recorded on an air district-approved form that is maintained at the GDF and made available to the Executive Officer/Air Pollution Control Officer or their designee upon request, or

(b) The dispenser(s) associated with the problem that triggered the failure alarm is isolated, removed from service and not operated until the required repairs are completed and, when completed, all information associated with the repairs is recorded on an air district-approved form that is maintained at the GDF and made available to the Executive Officer/Air Pollution Control Officer or their designee upon request.

The Executive Officer/Air Pollution Control Officer of an air district may also designate in writing a portion of a county as "rural" (i.e., allowing operators to correct the problems identified by the ISD system within seven (7) calendar days of the first ISD failure alarm pursuant to the provisions in section I. above and condition permits for gasoline dispensing facilities in such areas accordingly) where that portion has a projected population for 2005 of less than 132,000 people and is in a separate air basin. The Executive Officer/Air Pollution Control Officer of a local air district may further designate in writing additional "rural" areas (i.e., make them subject to the provision in section I. above) and condition permits for gasoline dispensing facilities in such areas accordingly even though such areas may be within a county having a projected population for 2005 of more than 132,000 people (see attached Table 1).

Please be advised that in the event that timely compliance cannot be achieved, the Hearing Board of the affected air district may grant an Order of Abatement or other administrative relief if the findings required by statute can be made, allowing gasoline dispensing to resume before the requisite repairs are completed.

Recommended Enforcement Action:

For the duration of the 18-month in-use performance evaluation period starting on July 1, 2006, it is recommended that air districts take enforcement action if the GDF owner/operator resets the ISD system without adhering to the permit conditions. It is also recommended that air districts take enforcement action if a GDF owner/operator dispenses gasoline while the ISD system is shut off, tampered with, disconnected or otherwise disabled. Air districts will continue to take appropriate enforcement action for violations of gasoline vapor recovery requirements determined by using current enforcement methods including, but not limited to, visual inspections, testing, and records (non-ISD) review. Enforcement action will also be taken for failure to maintain gasoline vapor control equipment in accordance with maintenance requirements specified by the applicable ARB Certification Executive Orders and California Health and Safety Code/Title 17 defects (title 17, California Code of Regulations, section 94006).

CAPCOA has surveyed the California air districts and CAPCOA believes that all districts concur with the recommended enforcement action.

If you have any questions, please call Dick Smith, CAPCOA Vapor Recovery sub Committee Liaison at 858-586-2700 or William V. Loscutoff, Chief, Monitoring and Laboratory Division, at 916-445-3742.

Sincerely,

Catherine Witherspoon
Executive Officer, ARB

Barbara A. Lee, President
CAPCOA

Attachment: Table 1 - "Projected 2005 Population by Counties"

cc: CAPCOA Board
Dick Smith, CAPCOA Vapor Recovery sub Committee Liaison
Kathleen Tschogl, ARB
William V. Loscutoff, ARB
Steve Arita, WSPA

Table 1
Projected 2005 Population By Counties

County	Projected 2005 population	County	Projected 2005 population
Alpine	1,304	Monterey	430,150
Sierra	3,529	Sonoma	483,859
Modoc	9,855	Stanislaus	509,985
Trinity	13,684	San Joaquin	662,864
Mono	13,758	San Mateo	725,098
Mariposa	17,981	Kern	755,072
Inyo	18,596	San Francisco	798,688
Colusa	20,935	Ventura	819,698
Plumas	21,143	Fresno	889,029
Glenn	28,163	Contra Costa	1,032,968
Del Norte	29,014	Sacramento	1,392,930
Lassen	35,751	Alameda	1,526,821
Amador	37,771	Santa Clara	1,765,162
Calaveras	45,204	Riverside	1,899,271
Siskiyou	45,469	San Bernardino	1,964,243
Tuolumne	57,461	San Diego	3,073,469
San Benito	58,216	Orange	3,080,710
Tehama	60,261	Los Angeles	10,226,598
Lake	64,135	**GRAND TOTAL**	**37,033,473**
Yuba	67,102		
Sutter	88,905		
Mendocino	90,468		
Nevada	100,199		
Humboldt	131,317		
Napa	134,129		
Madera	141,218		
Kings	145,952		
Imperial	162,599		
El Dorado	174,949		
Shasta	180,246		
Yolo	192,508		
Butte	215,558		
Merced	243,915		
Marin	251,607		
Santa Cruz	261,862		
San Luis Obispo	262,843		
Placer	310,698		
Tulare	412,418		
Santa Barbara	420,577		
Solano	425,565		

Interpolated from projections by Vivian Lerch, ARB, 3/22/05, from 2004 population data prepared by the California Demographic Research Unit, Department of Finance

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Form 1

GDF Name and Address	**ORVR VEHICLE DETERMINATION DATA SHEET**	Person(s) Conducting Test :
Test Date/Time:	Source: **GDF Phase II Vapor Recovery** **GDF #** _____ **Permit #** _____	Time of day

Year	Make	Model	Evap Family Code Enter R, E, V or NV (Not Verified)	Fueling Point	Starting Dispensing Time	Gallons Dispensed	V/L from TLS

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Form 2

Data Sheet for Pressure Sensor Verification					
GDFName:		Test Time:		Test Date:	
Address:		Persons Conducting Test:			
City:		Permit Number:			
Initial Ambient Temperature [ºF]:		Final Ambient Temperature [ºF]:			

Observed Underground Storage Tank Pressure

TLS Reading		Manometer Reading	
Time	Pressure (In H_2O)	Time	Pressure (In H_2O)

Form 3

Vapor Pressure Sensor Ambient Reference Test

PERSONS CONDUCTING TEST:	**DATE OF TEST**
	TIME OF TEST
	DISTRICT PERMIT #
GDF ADDRESS **CITY** **STATE ZIP**	

STEP 1.	**PRESSURE SENSOR LOCATION: DISPENSER FUELING POINT NUMBERS** FP___ /FP___	**PRESSURE SENSOR SERIAL NUMBER** _____
STEP 2.	**REFERENCE PORT CAP REMOVED?** ☐ **VALVE SET TO REFERENCE PORT (PER FIG. 3)?** ☐	
STEP 3.	**NON-CALIBRATED SENSOR VALUE** _____ **INCHES OF WATER COLUMN** **(OBTAIN VALUE USING TLS CONSOLE KEYPAD SEQUENCE SHOWN IN FIG. 4, STEP 7)**	
STEP 4.	**PRESSURE BETWEEN +0.20 & -0.20 (Y/N)?** ☐ **IF NO, NOTIFY STATION OWNER** ☐	
STEP 5.	**REFERENCE PORT CAP REPLACED?** ☐ **VALVE SET TO VAPOR SPACE PORT (PER FIG 3)?** ☐	
STEP 6.	**MODE KEY PRESSED TO EXIT CALIBRATE SMARTSENSOR MENU?** ☐	

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Form 4
Veeder-Root In-Station Diagnostics (ISD) Vapor Flow Meter Operability Test Procedure

PERSON'S CONDUCTING TEST		**DATE OF TEST**	
GDF NAME		**DISTRICT PERMIT #**	
STATION ADDRESS		**CITY**	**STATE ZIP**
	VAPOR FLOW METER SERIAL NUMBER _____		
	DISPENSER FUELING POINT NUMBERS	FP _____	FP _____
STEP 1.	**ISD DAILY REPORT GROSS V/L VALUES**		
STEP 2.	**LOW GRADE FUEL HOSE *V/L RESULT #1 (ONE FP ONLY)**		
STEP 3.	**STEP 1. VALUE MINUS STEP 2. VALUE**	**DIFF.**	**DIFF.**
	PASS IF DIFFERENCE IS WITHIN +/-0.15, IF LARGER DIFFERENCE, THEN CONTINUE TO STEP 4 (CIRCLE ONE)	**PASS CONTINUE TO STEP 4**	**PASS CONTINUE TO STEP 4**
STEP 4.	**LOW GRADE FUEL HOSE V/L RESULT #2**		
	LOW GRADE FUEL HOSE V/L RESULT #3		
	AVERAGE OF 3 V/L RESULTS	**AVG.**	**AVG.**
STEP 5.	**STEP 1. VALUE MINUS STEP 4. AVG.**	**DIFF.**	**DIFF.**
	PASS IF DIFFERENCE IS WITHIN +/-0.15, IF LARGER DIFFERENCE, THEN CONTINUE TO STEP 6 OR 7 (CIRCLE ONE)	**PASS CONTINUE TO STEP 6**	**PASS NOTIFY STATION OWNER**
STEP 6.	**IF CONTINUE, REPEAT AT STEP 2. FOR 2ND FP USING 2ND FP COLUMN, ABOVE.**		